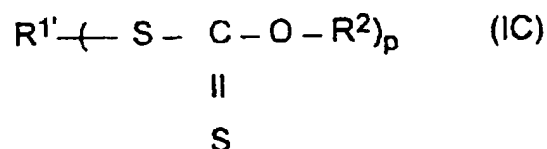
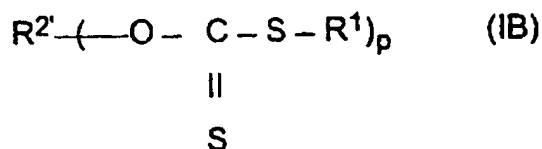
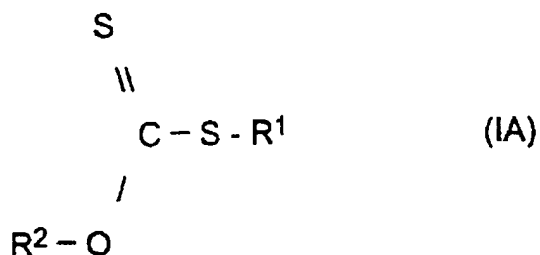


- at least one compound of general formula (IA), (IB), or (IC):



wherein:

- R^2 and $\text{R}^{2'}$ represent:

- an alkyl, acyl, aryl, alkene, or alkyne group (i),
 - a carbocyclic system (ii), saturated or unsaturated, optionally aromatic,
- or

- a heterocyclic system (iii), saturated or unsaturated,

these groups and cyclic systems (i), (ii), and (iii) being substituted by at least one fluorine atom, chlorine atom, or bromine atom,

- R^1 and $\text{R}^{1'}$ represent:

- an alkyl, acyl, aryl, alkene, or alkyne group (i), optionally substituted,

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- a carbocyclic system (ii), saturated or unsaturated, optionally substituted or aromatic,
 - a heterocyclic system (iii), saturated or unsaturated, optionally substituted,
- these groups and cyclic systems (i), (ii) and (iii) being optionally substituted by substituted phenyl groups, substituted aromatic groups, alkoxycarbonyl or aryloxycarbonyl (-COOR) groups, carboxy (-COOH) groups, acyloxy (-O₂CR) groups, carbamoyl (-CONR₂) groups, cyano (-CN) groups, alkylcarbonyl groups, alkylarylcarbonyl groups, arylcarbonyl groups, arylalkylcarbonyl groups, phthalimido groups, maleimido groups, succinimido groups, amidino groups, guanidino groups, hydroxyl (-OH) groups, amino (-NR₂) groups, halogen atoms, allyl groups, epoxy groups, alkoxy (-OR) groups, S-alkyl groups, S-aryl groups, or groups having hydrophilic or ionic character, R representing an alkyl or aryl group, or
- a polymer chain,

- p is between 2 and 10, and

b) recovering the polymer.

18. (New) A process according to claim 17, wherein the group having hydrophilic or ionic character is selected from the group consisting of alkali metal salts of carboxylic acids, the alkali metal salts of a sulfonic acid, polyalkylene oxide chains, and quaternary ammonium salts.

19. (New) The process according to claim 17, wherein R^2 and $R^{2'}$ are substituted by at least one fluorine atom.

20. (New) The process according to claim 17 wherein R^2 represents a group of formula:

- $CH_2R^{5'}$, wherein $R^{5'}$ represents an alkyl group substituted by at least one fluorine atom, chlorine atom, or bromine atom.

21. (New) The process according to claim 17, wherein R^2 is selected from the group consisting of the following groups:

- CH_2CF_3 ,
- $CH_2CF_2CF_2CF_3$ and
- $CH_2CH_2C_6F_{13}$.

22. (New) The process according to claim 17, wherein R^1 represents:

- a group of formula $CR^{1'}R^{2'}R^{3'}$, wherein:

- $R^{1'}$, $R^{2'}$ and $R^{3'}$ represent the groups (i), (ii), or (iii), or
- $R^{1'} = R^{2'} = H$ and $R^{3'}$ is an aryl, alkene, or alkyne group, or

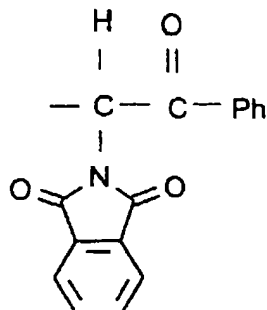
- a group of formula $-COR^{4'}$, wherein $R^{4'}$ represents a group (i), (ii), or (iii).

23. (New) The process according to claim 22, wherein R^1 is selected from group consisting of the following groups:

- $CH(CH_3)(CO_2Et)$,
- $CH(CH_3)(C_6H_5)$,
- $CH(CO_2Et)_2$,
- $C(CH_3)(CO_2Et)(S-C_6H_5)$,

- $C(CH_3)_2(C_6H_5)$, and

-



24. (New) The process according to claim 17, wherein step a) comprises bringing into contact a compound of formula (IA).

25. (New) The process according to claim 24, wherein the compound of formula (IA) is selected from the group consisting of ethyl a-(O-heptafluorobutylxanthyl)propionate, ethyl a-(O-trifluoroethylxanthyl)propionate, and ethyl a-(O-tridecafluorooctanyl xanthyl)propionate.

26. (New) The process according to claim 17, wherein the ethylenically unsaturated monomer is selected from the group consisting of styrene or its derivatives, butadiene, chloroprene, (meth)acrylic esters, and vinyl nitriles.

27. (New) The process as according to claim 26, wherein the ethylenically unsaturated monomer is selected from the group consisting of vinyl acetate, vinyl Versatate®, and vinyl propionate.

28. (New) A polymer obtained by the process which essentially consists in bringing an ethylenically unsaturated monomer into contact with a source of free radicals and a compound of formula (IA), (IB), or (IC) as defined in claim 17.

29 (New) The polymer according to claim 28, having a polydispersity index of at most 2.

30. (New) The polymer according to claim 29, wherein the polydispersity index is of at most 1.5.

31. (New) A process for preparing multiblock polymers, comprising the following steps:

- step 1: carrying out step a) according to claim 17, to obtain a block polymer
- step(s) 2: repeating at least once the preceding step with different monomers from the preceding step, and with the block polymer obtained from the preceding step instead of the precursor compound of formula (IA), (IB), or (IC), to obtain a multiblock polymer, and
- step 3: recovering the multiblock polymer.

32. (New) A multiblock polymer obtained by the process according to claim 31.

33. (New) The multiblock polymer according to claim 32, having an index of polydispersity of at most 2.

34. (New) The multiblock polymer according to claim 33, wherein the index of polydispersity is of at most 1.5.

35. (New) A multiblock polymer according to claim 32, comprising at least two polymer blocks selected from the group consisting of the following associations of blocks:

- polystyrene and polymethyl acrylate,
- polystyrene and polyethyl acrylate,